Title (en)

A clock recovery circuit for serial digital video

Title (de)

Taktrückgewinnungsschaltung für ein serielles digitales Videosignal

Title (fr)

Circuit de récupération d'horloge pour un signal vidéo numérique sériel

Publication

EP 0660611 B1 20000405 (EN)

Application

EP 94309535 A 19941220

Priority

- CA 2112290 A 19931223
- US 36054494 A 19941221

Abstract (en)

[origin: EP0660611A2] A control circuit for use with a phase locked loop in a digital video receiver. The digital receiver accepts a serial digital input signal which can comprise composite or component video signals. The phase locked loop comprises a phase detector, a loop filter, and a voltage controlled oscillator (VCO) and includes a divide-by-two modulus divider coupled to the output of the VCO. The VCO has an oscillation frequency control port and the divider has a frequency select port. The control circuit includes an automatic fine tuning and frequency sweeping stage which is coupled to the output of the loop filter and the oscillation frequency control port. The tuning and frequency stage provides temperature drift correction for the VCO. In addition, the tuning and frequency stage "sweeps" the oscillation frequency of the VCO to aid in "locking" the phase locked loop to the phase or frequency of the input signal. Once locked, timing signals and digital data can be extracted from the input signal. The control circuit also includes a video signal detector stage for detecting whether the input signal comprises a composite video signal or a component video signal. The video signal detector stage produces an output signal which controls the modulus of the divider in the phase locked loop. <IMAGE>

IPC 1-7 (main, further and additional classification)

H04N 7/24; H03L 7/12; H03L 7/18

IPC 8 full level (invention and additional information)

H04N 5/06 (2006.01); **H03L 7/12** (2006.01); **H03L 7/18** (2006.01); **H04L 7/033** (2006.01); **H04N 5/12** (2006.01); **H04N 7/167** (2011.01); **H04N 7/24** (2011.01)

CPC (invention and additional information)

H04N 21/2383 (2013.01); **H03L 7/12** (2013.01); **H04L 7/033** (2013.01); **H04N 5/126** (2013.01); **H04N 7/1675** (2013.01); **H04N 21/4382** (2013.01)

Cited by

EP0952568A1; FR2778044A1; WO2004045077A1; WO0232116A1; WO0014922A1; US6778024B2; US6317005B1

Designated contracting state (EPC)

AT BE CH DE DK ES FR GB IT LI NL

EPO simple patent family

EP 0660611 A2 19950628; EP 0660611 A3 19960306; EP 0660611 B1 20000405; AT 191597 T 20000415; CA 2112290 A1 19950624; CA 2112290 C 20040601; DE 69423860 D1 20000511; DE 69423860 T2 20001019; DK 0660611 T3 20000703; JP H0856293 A 19960227; US 5541556 A 19960730

INPADOC legal status

2008-12-31 [PG25 GB] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO

- Ref Country Code : GB
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20071220

2008-08-27 [GBPC] GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE

- Effective date : 20071220

2006-12-20 [PGFP GB] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE

- Ref Country Code : GB
- Payment date : 20061220
- Year of fee payment : 13

2006-11-17 [REG FR ST] NOTIFICATION OF LAPSE

- Effective date : 20060831

2006-09-01 [NLV4] NL: LAPSED OR ANULLED DUE TO NON-PAYMENT OF THE ANNUAL FEE

- Effective date : 20060701

2006-08-31 [PG25 FR] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO

- Ref Country Code : FR
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20060831

2006-07-31 [REG DK EBP] EP PATENT LAPSED

2006-07-01 [PG25 DE] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO

- Ref Country Code : DE
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20060701

2006-07-01 [PG25 NL] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : NL
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20060701

2006-01-02 [PG25 DK] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : DK
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20060102

2005-12-20 [PG25 IT] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : IT
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20051220

2004-12-31 [PGFP NL] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : NL
- Payment date : 20041231
- Year of fee payment : 11

2004-12-27 [PGFP DE] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : DE
- Payment date : 20041227
- Year of fee payment : 11

2004-12-17 [PGFP DK] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : DK
- Payment date : 20041217
- Year of fee payment : 11

2004-10-28 [PGFP FR] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : FR
- Payment date : 20041028
- Year of fee payment : 11

2002-01-01 [REG GB IF02] EUROPEAN PATENT IN FORCE AS OF 2002-01-01

2001-08-15 [REG CH PL] PATENT CEASED

2001-03-21 [26N] NO OPPOSITION FILED

2000-12-31 [PG25 CH] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : CH
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20001231

2000-12-31 [PG25 LI] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : LI
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20001231

2000-12-20 [PG25 AT] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : AT
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20001220

2000-07-21 [ET] FR: TRANSLATION FILED

2000-07-03 [REG DK T3] EP PATENT WITH DANISH CLAIMS

2000-05-11 [REF] CORRESPONDS TO:
- Document : DE 69423860 20000511

2000-04-14 [REG CH EP] ENTRY IN THE NATIONAL PHASE

2000-04-14 [REG CH NV] NEW AGENT
- Representative's name : ISLER & PEDRAZZINI AG

2000-04-05 [AK] DESIGNATED CONTRACTING STATES:
- Kind Code of Ref Document : B1
- Designated State(s) : AT BE CH DE DK ES FR GB IT LI NL

2000-04-05 [PG25 ES] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : ES
- Free text : THE PATENT HAS BEEN ANNULLED BY A DECISION OF A NATIONAL AUTHORITY
- Effective date : 20000405

2000-04-05 [PG25 BE] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : BE
- Free text : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT
- Effective date : 20000405

2000-04-05 [REF] CORRESPONDS TO:
- Document : AT 191597 T 20000415

2000-02-07 [ITF] IT: TRANSLATION FOR A EP PATENT FILED
- Owner name : SOCIETA' ITALIANA BREVETTI S.P.A.

1998-07-15 [17Q] FIRST EXAMINATION REPORT
- Effective date : 19980603

1996-09-25 [17P] REQUEST FOR EXAMINATION FILED
- Effective date : 19960725

1996-03-06 [AK] DESIGNATED CONTRACTING STATES:
- Kind Code of Ref Document : A3
- Designated State(s) : AT BE CH DE DK ES FR GB IT LI NL

1995-06-28 [AK] DESIGNATED CONTRACTING STATES:
- Kind Code of Ref Document : A2
- Designated State(s) : AT BE CH DE DK ES FR GB IT LI NL